

2006 Conference on IEEE 1588 Standard for a Precision Clock Synchronization Protocol for Networked Measurement and Control Systems

**Green Auditorium, Building 101
National Institute of Standards and Technology
Gaithersburg, Maryland, USA**

AGENDA

Monday, October 2, 2006

- 8:30 – 8:50 AM: Plug-fest participants pick up visitor badges at NIST Visitor Center*
- 8:30 – 9:00 AM: Plug-fest participants register at desk outside the Green Auditorium*

Coffee & Bagel and Networking: 8:30 – 9:00 AM

Plug-fest - Integration Testing

- 9:00 AM – 5:00 PM: Moderator: Andrew Fernandez, Martin Curran-Gray – Agilent Technologies: The Plug-fest will be held in the Red Auditorium. (Plug-fest activities open only to those directly involved in Plug-fest testing.)

Coffee Break: 10:15 a.m.

Lunch: noon to 1 p.m.

Tutorial (Open to all registered conference attendees)

- 1:00 – 1:50 PM: Tutorial attendees pick up visitor badges at NIST Visitor Center*
- 1:30 – 2:00 PM: Tutorial attendees register at desk outside the Green Auditorium*
- 2:00 – 5:20 PM: **IEEE 1588 Tutorial.**
 - 2:00 – 3:00 PM: **IEEE 1588 Basics:** Hans Weibel – Zurich University of Applied Sciences
 - 3:00 – 3:30 PM: **IEEE 1588 Version 2:** John C. Eidson – Agilent Technologies

Coffee Break and Networking: 3:30 – 3:50 PM

- 3:50 – 4:20 PM: **Telecommunications Applications:** Silvana Rodrigues – Zarlink Semiconductor.
- 4:20 – 4:50 PM: **Industrial and Motion Control Applications:** Anatoly Moldovansky – Rockwell Automation; **Presentation Ludwig Winkel** – Siemens.
- 4:50 – 5:20 PM: **Test and Measurement Applications:** John C. Eidson – Agilent Technologies

Tuesday, October 3, 2006

- 7:30 AM: NIST bus leaves conference hotel for NIST
- 7:40 – 8:15 AM: Conference attendees pick up visitor badges at NIST Visitor Center*
- 7:45 – 8:20 AM: Conference attendees register at desk outside the Green Auditorium*

Coffee & Bagel and Networking: 7:45 – 8:20 AM

Opening Session:

- 8:20 – 8:40 AM:
 - **Opening Remark and Introduction:** Kang Lee - NIST
 - **Welcome from the Office of NIST Director:** Dr. Jim Hill, NIST Acting Deputy Director
 - **Administrative Matters:** Kang Lee - NIST

Session 1:

Application and General Topics–1, Moderator: Hans Weibel – Zurich University of Applied Sciences

- 8:40 – 9:10 AM: **Clock Synchronization Over 802.11 For Home A/V Applications:** *Kevin Stanton – Intel*
- 9:10 – 9:40 AM: **1588 Un-Plugged:** *Martin Curran-Gray – Agilent Technologies UK Ltd*
Paper (Curran-Gray)
- 9:40 – 9:55 AM: **Report on IEEE 1588 Standards Activity:** John C. Eidson –Agilent Technologies
- 9:55 – 10:10 AM: **Plug-fest Introduction:** Andrew Fernandez, Martin Curran-Gray – Agilent Technologies

Coffee Break and Networking: 10:10 – 10:30 AM

Session 2:

General Session: View and Discuss Plug-fest Activities

- 10:30 AM–Noon: Plug-fest demonstration (Red Auditorium): Attendees may use this time to view the plug-fest results and discuss the plug-fest experience with the participants.

Lunch: Noon – 1:00 PM

Session 3:

System and Design Issues, Moderator: Kang Lee – NIST

- 1:00 – 1:30 PM: **Specifying the Timing Performance of IEEE 1588 Devices:** *Samuel Stein – Timing Solutions.*
- 1:30 – 2:00 PM: **A Programming Environment for Distributed Real-time Systems:** *Yang Zhao, Edward A. Lee – EECS Department, University of California at Berkeley,*
Paper (Zhao)

- 2:00 – 2:30 PM: **Lessons learned from a large-scale IEEE 1588 Simulation Environment:** *Georg Gaderer, Gerhard Siber, Patrick Loschmidt – Research Unit for Integrated Sensor Systems, Austrian Academy of Sciences*
- 2:30 – 3:00 PM: **Issues and Observations Discovered Porting Open-Source PTPD to IPv6:** *Mark Elliot – Symmetricom, Paper (Elliot)*

Coffee Break and Networking: 3:00 – 3:30 PM

Session 4:

Application Topics–2, Moderator: Georg Gaderer – Austrian Academy of Sciences

- 3:30 – 4:00 PM: **Design and Performance of Transparent Clock over Existing Network Elements using Modified Pluggable GigaBit Interface Converters:** *Ski Ilnicki, Takashi Hidai, Jeff Burch– Agilent Technologies, Inc., Paper (Ilnicki)*
- 4:00 – 4:30 PM: **Deriving Consistent Time Base Using Local Clock Information:** *Ashok Agrawala, Moustafa Youssef – Computer Science Dept. University of Maryland Paper (Agrawala)*
- 4:30 – 5:00 PM: **Clock Synchronization in Audio/Video Bridging Networks Using IEEE 1588 Version 2:** *Geoffrey M. Garner, Kees den Hollander – Samsung Electronics*

NIST bus leaves NIST for hotel: 5:15 PM

NIST bus leaves hotel for conference dinner: 6:00 PM

Conference Dinner: 6:30 PM:

NIST bus returns to hotel after dinner – approximately: 9:00 PM

Wednesday, October 4, 2006

- 7:45 AM: NIST bus leaves conference hotel for NIST
- 7:45 – 8:30 AM: Conference attendees pick up visitor badges at NIST Visitor Center*
- 7:45 – 8:30 AM: Conference attendees register at desk outside the Green Auditorium*

Coffee & Bagel and Networking: 7:45 – 8:30 AM

Session 5:

Application Topics–3, Moderator: Ken Harris – Rockwell Automation

- 8:30 – 9:00 AM: **IEEE 1588 in Navy Next Generation Time Sensitive Applications:** *Karen O'Donoghue, et. al. – US Navy*
- 9:00 – 9:30 AM: **Practical Aspects Impacting Time Synchronization Data Quality in Semiconductor Manufacturing:** *James Moyne¹, Jonathan Parrott¹, Naveen Kalappa¹, Ya-Shian Li²–¹University of Michigan., ²National Institute of Standards and Technology, Paper (Kalappa)*
- 9:30 – 10:00 AM: **Combining Synchronous Ethernet and IEEE1588 for use in Telecom:** *Silvana Rodrigues – Zarlink*

Coffee Break and Networking: 10:00–10:30 AM

Session 6:

Application & Implementation Topics, Moderator: Dirk Mohl – Hirschmann Automation and Control

- 10:30 – 11:00 AM: **Using IEEE 1588 as a Tool for Analysis of Network Packet Delay Variation:** *Lee Cosart, Tom Farley – Symmetricom*
- 11:00 – 11:30 AM: **IEEE 1588 Hardware for Fault Tolerance and High Precision:** *Patrick Loschmidt, Georg Gaderer – Research Unit for Integrated Sensor Systems Austrian Academy of Sciences, and Nikolaus Kerö – Oregano Systems GesmbH*
- 11:30 AM – Noon: **Design of an IEEE-1588 Interface for Sub-nanosecond Performance:** *Marek Christer, Steve Passe, Samuel Stein– Timing Solutions.*

Lunch: Noon – 1:00 PM:

Session 8:

Implementation Topics–2, Moderator: Galina Antonova – General Electric

- 1:00 – 1:30 PM: **Improvements to Boundary Clock Based Time Synchronization through Cascaded Switches:** *Sihai Wang, Jaehun Cho, Geoffrey M. Garner –Samsung Electronics, Paper (Garner)*
- 1:30 – 2:00 PM: **PPS over Ethernet (PPSoE): Generating high quality synchronization signals by disciplining a high quality oscillator with IEEE 1588:** *Heiko Gerstung – Meinberg Radio Clocks*
- 2:00 – 2:30 PM: **Pre-Standard Prototype Implementation of an End-to-End Transparent Clock:** *Dirk Mohl – Hirschmann Automation and Control GmbH, Hans Weibel – Zurich University of Applied Sciences*

Coffee Break and Networking: 2:30 – 3:00 PM

Closing Session: Moderator: Kang Lee – NIST

- 3:00 – 3:15 PM: **Invitation to the “2007 International IEEE Symposium on Precision Clock Synchronization for Measurement, Control, and Communication”.** *Georg Gaderer – Research Unit for Integrated Sensor Systems Austrian Academy of Sciences*
- 3:15 – 3:30 PM: **Closing remarks.** Kang Lee – NIST

NIST bus returns to hotel: 3:45 PM:

*NIST visitor badges are good for the entire conference. After the first day attended, attendees need only show the badge and photo ID at the entrance gate. Registration outside the Green Auditorium is only required the first day of attendance. Passwords for wireless access will be distributed at the registration desk.